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10/661,492	09/15/2003	Chu-Ting Su	REAP0480USA	9226
27765	7590	04/11/2008	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			LAO, LUN S	
			ART UNIT	PAPER NUMBER
			2615	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/661,492	Applicant(s) SU ET AL.	
	Examiner LUN LAO	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-26, 29 and 38-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-26 and 29-25, 38-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This action is in response to the amendments filed on 01-30-2008. Claims 24-26, 29, and 33-35 have been amendment. Claims 1-23, 27-28 and 36-37 have been canceled and claims 39-43 have been added. Claims 24-26, 29-35 and 38- 43 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01-30-2008 has been entered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "an analog-to-digital converter, coupled to the impedance detecting circuit, for converting the first, second and third analog signals to a first, second and third digital values, respectively; and a control circuit, coupled to the analog-to-digital converter, for determining the type of the external device when the first digital value falls within a first predetermined range,

the second digital value falls within a second predetermined range, the third digital value falls within a third predetermined range and all of the first, second and third predetermined ranges together indicate a same recognized condition among a plurality of predetermined recognized conditions; wherein the impedance detecting circuit comprises a plurality of resistors, which couples together in parallel, for providing the first, second and third resistance” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 43 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 42 recited “a decoder, coupled to the control circuit, for receiving a first number of outputs from the control circuit and thereby generating a second number of outputs; wherein the second number is larger than the first number” was not supported in the original specification nor in any claims original filed.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 24-26, and 29- 33, 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Patterson et al. (US 2004/0081099).

Consider claim 24 Patterson teaches an apparatus for automatically determining a type of an external device, comprising:

a jack for coupling the external device; an impedance detecting circuit, coupled to the external device through the jack, for generating a first analog signal according to an impedance of the external device (see fig. 17 (jack)) and a first resistance(R1), a second analog signal according to the impedance of the external device and a second resistance(R2) and a third analog signal according to the impedance of the external device and a third resistance (R3), wherein the first, second and third resistances are different;

an analog-to-digital converter (412), coupled to the impedance detecting circuit, for converting the first, second and third analog signals to a first, second and third digital values, respectively; and

a control circuit(11), coupled to the analog-to-digital converter, for determining the type of the external device when the first digital value falls within a first predetermined range, the second digital value falls within a second predetermined range, the third digital value falls within a third predetermined range and all of the first, second and third predetermined ranges together indicate a same recognized condition among a plurality of predetermined recognized conditions; wherein the impedance detecting circuit comprises a plurality of resistors, which couples together in parallel, for providing the first, second and third resistance (see page 7[0069]-[0073]).

Consider claims 25-26 Patterson teaches the apparatus wherein the impedance detecting circuit comprises:

a switching circuit for selectively coupling at least one of the resistors to the external device and thereby sequentially generating the first, second and third analog signals which are respectively converted into the first, second and third analog signals which are respectively converted into the first, second and third values by the analog-to-digital converter(see fig. 17 and page 7[0069]-[0073]); and wherein at least two of the first, second and third predetermined ranges are different (see fig. 17; and page 6[0060] and page 7[0069]-[0073]).

Consider claim 29-31 Patterson teaches a connection detecting circuit, coupled between the jack and the impedance detecting circuit, for determining whether the external device couples to the jack such that the impedance detecting circuit generates the first, second and third analog signals when the connection detecting circuit determines the external device being coupled to the jack(see fig. 17 and page 7[0069]-[0073]); and the control circuit disconnects the coupling relation between the impedance detecting circuit and the jack after determining the type of the external device(see fig. 17 and page 7[0069]-[0073]); and a multiplexing circuit for coupling the external device to an internal circuit according to the type of the external device determined by the control circuit(see fig. 17; and page 5[0057] and page 7[0069]-[0073]).

Consider claim 32 Patterson teaches that a decoder, coupled to the control circuit, for receiving a first number of outputs from the control circuit and thereby generating a second number of outputs; wherein the second number is larger than the first number (see figs. 15-17; and page 6[0060] and page 7[0069]-[0073]).

Consider claim 33 Patterson teaches a method for automatically determining a type of an external device, comprising:

providing a plurality of predetermined resistances by a plurality of resistors coupled together in parallel(see fig. 17 (R1, R2...Rn));

generating a first analog signal according to a first coupling relation between the plurality of predetermined resistance and an impedance of the external device;

generating a second analog signal according to a second coupling relation, which is different from the first coupling relation, between the plurality of predetermined resistances and the impedance of the external device;

generating a third analog signal according to a third coupling relation, which is different from the first and second coupling relations, between the plurality of predetermined resistances and the impedance of the external device; respectively converting the first, second and third analog signals to first, second and third digital values; and

determining the type of the external device when the first digital value falls within a first predetermined range, the second digital value falls within a second predetermined range, the third digital value falls within a third predetermined range and all of the first, second and third ranges together indicate a same recognized condition among a plurality of predetermined recognized conditions(see figs. 15-17; and page 6[0060] and page 7[0069]-[0073]).

Consider claim 35 Patterson teaches wherein at least two of the first, second and third predetermined rang are different (see figs. 15-17; and page 6[0060] and page 7[0069]-[0073]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 34 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2004/0081099) in view of Dao (US PAT. 6,407,633).

Consider claim 34 Patterson teaches the method further comprising:

decoupling a first resistor of the plurality of resistors from the impedance of the external device before coupling second resistor of plurality of resistors to the impedance of the external device(see figs. 15-17; and page 6[0060] and page 7[0069]-[0073]); but Patterson does not explicitly teach decoupling the second resistor from the impedance of the external device before coupling a third resistor of the plurality of resistors to the impedance of the external device; and

decoupling all of the plurality of resistors from the impedance of the external device after constituting the recognized condition.

However, Dao teaches decoupling the second resistor from the impedance of the external device before coupling a third resistor of the plurality of resistors to the impedance of the external device; and

decoupling all of the plurality of resistors from the impedance of the external device after constituting the recognized condition(see fig.3, and col. 3 line 35-667 and col. 7 line20-col. 8 line 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Dao into the teaching of Patterson to provide better sound quality for each channel.

Consider claim 38 Patterson teach an apparatus for determining a type of an external device, comprising:

a jack for coupling the external device (see fig. 17 (jack));
an impedance detecting circuit (410), coupled to the external device through the jack (jack), for generating a first analog signal according to an impedance of the external device and a first resistance (R1), a second analog signal according to the impedance of the external device and a second resistance (R2) and a third analog signal according to the impedance of the external device and a third resistance(R3), the impedance detecting circuit comprising:

a plurality of detecting paths coupled together in parallel,

an analog-to-digital converter (412), coupled to the impedance detecting circuit (410), for converting the first, second and third analog signals to first, second and third digital values; and

a control circuit (11), coupled to the analog-to-digital converter(412), for determining the type of the external device when the first digital value falls within a first predetermined range, the second digital value falls within a second predetermined range, the third digital value falls within a third predetermined range and all of the first, second and third predetermined ranges together indicate a recognized condition among a plurality of predetermined recognized conditions; wherein the first, second and third resistances are different (see figs. 15-17; and page 6[0060] and page 7[0069]-[0073]); but Patterson does not explicitly teach each of the detecting paths comprising a resistor and a transistor coupled together in series, ,and on/off conditions of the transistors determining the first, second and third resistances.

However, Dao teaches each of the detecting paths comprising a resistor and a transistor coupled together in series, and on/off conditions of the transistors determining the first, second and third resistances(see fig.3, and col. 3 line 35-67 and col. 7 line20-col. 8 line 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Dao into the teaching of Patterson to provide better sound quality for each channel.

Consider claim 39 Patterson as modified by Dao teaches the apparatus wherein the plurality of detecting paths comprises:

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a first detecting path comprising a first resistor and a first transistor coupled in series; a second detecting path, coupled to the first detecting path in parallel, comprising a second resistor and a second transistor coupled in series; and a third detecting path, coupled to the first and second paths in parallel, comprising a third resistor and a third transistor coupled in series; wherein the first resistance is determined when the first transistor is switched on and the second and third transistors are switched off, the second resistance is determined when the second transistor is switched on and the first and third transistors are switched off and the third resistance is determined when the third transistor is switched on and the first and second transistors are switched off (Dao, see fig.3, and col. 3 line 35-67 and col. 7 line20-col. 8 line 12 and Patterson, see figs. 10, 15-17; and page 6[0060] and page 7[0069]-[0073]).

Consider claim 40 Patterson as modified by Dao teaches the apparatus further comprising:

a connection detecting circuit (see fig. 17 (410b)), coupled between the jack (jack) and the impedance detecting circuit (410), for determining whether the external device couples to the jack such that the impedance detecting circuit generates the first, second and third analog signals when the connection detecting circuit determines the external device being coupled to the jack (see fig. 17; and page 6[0060] and page 7[0069]-[0073]).

Consider claims 41-43 Patterson as modified by Dao teaches the apparatus wherein the control circuit disconnects the coupling relation between the impedance detecting circuit and the jack after determining the type of the external device (see fig. 17; and

page 6[0060] and page 7[0069]-[0073]); and the apparatus further comprising: a multiplexing circuit for coupling the external device to an internal circuit, according to the type of the external device determined by file control circuit(see figs. 4,7, 17; and page 5[0057] and page 7[0069]-[0073]); and the apparatus further comprising: a decoder(see fig. 17 (412)), coupled to the control circuit(11), for receiving a first number of outputs from the control circuit and thereby generating a second number of outputs; wherein the second number is larger than the first number(see fig. 5; and page 6[0060] and page 7[0069]-[0073]).

Response to Arguments

10. Applicant's arguments with respect to claims 24-26, 29-35 and 38- 43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Starkey (US PAT. 3,562,428) is cited to show other related apparatus for automatic identification of audio input/output device and method thereof.

12. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

Art Unit: 2615

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Hand-delivered responses should be brought to:

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Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
/Lun-See Lao/
Examiner, Art Unit 2615
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 04-02-2008

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2615